

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of making a lithiated manganese dioxide for a primary lithium battery comprising:
 contacting a manganese dioxide with a lithium ion source at a lithiation temperature ~~sufficient to substantially~~ between 40° and 120°C to replace at least 75% of protons in the manganese dioxide with lithium ions; and
 heating the manganese dioxide at a water removal temperature sufficient to substantially remove residual and surface water to produce a lithiated manganese dioxide having an X-ray diffraction pattern substantially similar to the X-ray diffraction pattern of the manganese dioxide prior to lithiation.
2. (Original) The method of claim 1, wherein the manganese dioxide is persulfate derived chemical manganese dioxide.
3. (Original) The method of claim 1, wherein the manganese dioxide is gamma-manganese dioxide.
4. (Original) The method of claim 1, wherein the lithium ion source is an aqueous solution including a lithium salt.
5. (Original) The method of claim 4, wherein the lithium salt is a lithium hydroxide.
6. (Currently Amended) The method of claim 1, wherein the lithiation temperature is ~~between 40°C~~ 60° and 100°C.
7. (Currently Amended) The method of claim 1, wherein the water removal temperature is between 180°C and 500°C.

8. (Currently Amended) The method of claim 1, wherein the water removal temperature is between 200°C and 460°C.

9. (Currently Amended) A method of making a cathode for a battery comprising:
contacting a manganese dioxide with a lithium ion source;
heating the manganese dioxide to a temperature between 40°C and 120°C to produce a lithiated manganese dioxide in which at least 75% of protons in the manganese dioxide are replaced with lithium ions and having an X-ray diffraction pattern substantially similar to the X-ray diffraction pattern of the manganese dioxide prior to lithiation; and
coating a current collector with a composition including a carbon source, and the cathode active material, wherein the cathode active material includes a manganese dioxide.

10. (Original) The method of claim 9, wherein the manganese dioxide is persulfate derived chemical manganese dioxide.

11. (Original) The method of claim 9, wherein the manganese dioxide is gamma-manganese dioxide.

12. (Original) The method of claim 9, wherein the lithium ion source is an aqueous solution including a lithium salt.

13. (Original) The method of claim 12, wherein the lithium salt is a lithium hydroxide.

14. (Currently Amended) The method of claim 9, wherein the lithiation temperature is between [[4]]60°C and 100°C.

15. (Currently Amended) The method of claim 9, wherein the water removal temperature is between 180°C and 500°C.

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16. (Currently Amended) The method of claim 9, wherein the water removal temperature is between 200°C and 460°C.

17-21. (Cancelled).